REMARKS

In response to the Office Action mailed December 14, 2005, Applicants respectfully request reconsideration. To further the prosecution of this Application, Applicants submit the following remarks, have canceled claims and have added new claims. The claims as now presented are believed to be in allowable condition.

Claims 1-34 were pending in this Application. By this Amendment, claims 15-17 and 32-34 have been canceled. Applicants expressly reserve the right to prosecute such at least some of the canceled claims and similar claims in one or more related Applications. Claims 35-41 have been added. Accordingly, claims 1-14, 18-31 and 35-41 are now pending in this Application. Claims 1, 18 and 41 are independent claims.

Rejections under §103

Claims 1-3, 5-8, 10, 11, 14, 15, 16, 18-20, 22-25, 27, 28, 31, 32 and 33 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,342,608 (<u>Papa et al.</u>) in view of U.S. Patent No. 6,421,753 (<u>Hoese et al.</u>). Claims 4, 9, 21 and 26 were rejected under 35 U.S.C. §103(a) as being unpatentable over <u>Papa</u> and <u>Hoese</u> and a publication entitled "Dynamic Host Configuration Protocol" (<u>Droms</u>). Claims 12, 13, 17, 29, 30 and 34 were rejected under 35 U.S.C. §103(a) as being unpatentable over <u>Papa</u> and <u>Hoese</u> and a plublication entitled "Ping Manual Page" (<u>Ping</u>).

Applicants respectfully traverse each of these rejections and request reconsideration. The claims are in allowable condition.

<u>Papa</u> discloses methods of removing and replacing data processing circuitry without powering down a computer (<u>Abstract</u>). In Papa, a server includes a cabinet 101 housing a rack 102, a display monitor 173A resting on a shelf 173B, a retractable keyboard 174, a variable number of storage devices 106 mounted onto shelves 172, a CD-ROM module 108, a computer system which is mounted in a chassis 170 (column 3, line 61 through column 4, line 12).

The computer system is constructed in a modular fashion, including a CPU module 103, a plurality of network interface modules 104, and a plurality of power modules 105 (column 4, lines 12-15). Faults in individual modules may be isolated and repaired without disrupting the operation of the remainder of the server 100 (column 4, lines 15-17). The computer system includes a system board 182, a backplane board 184 which is interconnected with the system board 182, and canisters 258, 260, 262, and 264 which interconnect with the backplane board (column 4, lines 18-24). PC buses 250, 252, 254, and 256 connect respectively to the canisters 258, 260, 262, and 264 which are casings for a detachable bus system and provide multiple slots for adapters (column 4, lines 44-54). The backplane printed circuit board 184 has high density connectors 413, 415, 417 and 419 which connect to corresponding network interface modules 104 (column 7, lines 7-15). Fig. 5B of Papa shows the rear side of the backplane printed circuit board 184, connectors 421 that connect to connectors of the power modules 105, and the 413, 415, 417 and 419 (column 7, lines 26-33). Interface cards may be slipped into or removed from interface card slots 562 when a canister 560 is removed from its shelf 175B or 175C in the chassis 170 (column 8, lines 30-32). An interface card slot 562 may be empty or may be filled with a general interface card such as a network interface card (NIC), a local area network (LAN) card, or a small computer system interface (SCSI) controller card (column 8, lines 32-41).

Hoese discloses centralization of local storage for networked workstations without any cost of speed or overhead (column 2, lines 25-27). Each workstation accesses its virtual local storage as if it were locally connected (column 2, lines 27-29). Further, the centralized storage devices can be located in a significantly remote position even in excess of ten kilometers as defined by Fibre Channel standards (column 2, lines 29-31). Along these lines, a Fibre Channel high speed serial transport 32 interconnects a plurality of workstations 36 and storage devices 38 (column 3, 30-38 and Fig. 2). A storage router 44 then serves to interconnect these mediums and provide devices on either medium global,

transparent access to devices on the other medium (column 3, lines 38-40). Storage router 44 routes requests from initiator devices on one medium to target devices on the other medium and routes data between the target and the initiator (column 3, lines 41-44).

Droms discloses Dynamic Host Configuration Protocol (DHCP) (Abstract). Droms includes a section on a configuration parameters repository (section 2.1), and a section on Dynamic allocation of network addresses (section 2.2).

Ping discloses, in a manual page format, the FreeBSD ping function (page 1). Ping uses the ICMP protocol's mandatory ECHO_REQUEST datagram to elicit and ICMP_ ECHO_RESPONSE from a host or gateway (DESCRIPTION).

Claims 1-14

Claim 1 is directed to a network adapter that may be used in a network data storage system to permit data communication among data exchanging devices and a data storage system input/output (I/O) controller. The controller resides in the data storage system. The data exchanging devices are external to the adapter. The adapter includes one or more interfaces that may be coupled to an electrical backplane of the system. The backplane is coupled to the controller and is configured to permit communication between the controller and the adapter when the one or more interfaces are coupled to the backplane. The adapter further includes a switching system integrated into the adapter. The switching system has a first set of ports that may be coupled to the data exchanging devices and a second set of ports that may couple the switching system to the controller when the one or more interfaces are coupled to the backplane.

Papa and Hoese do not teach or suggest, either alone or in combination, a network adapter that may be used in a network data storage system where the adapter includes a switching system integrated into the adapter, as recited in claim 1. Rather, Papa simply discloses a modular computer system having a CPU module 103, a plurality of network interface modules 104, and a plurality of

power modules 105 where data processing circuitry can be removed and replaced without powering down the computer (e.g., see column 4, lines 12-17 and the Abstract of <u>Papa</u>). Furthermore, <u>Hoese</u> simply discloses a storage router 44 which routes requests from initiator devices on one medium to target devices on the other medium and routes data between the target and the initiator (e.g., see column 3, lines 41-44 of <u>Hoese</u>).

The Office Action itself states that "<u>Papa</u> fails to teach the specific use of a switch system", (see page 3, line 8 of the Office Action). Applicants agree.

However, the Office Action then goes on to contend that "Hoese teaches the use of a switch system that controls data flow in a storage network," and that "it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have combined <u>Papa</u> and <u>Hoese</u> to provide the switching system of <u>Hoese</u> in the system of <u>Papa</u>, because doing so would allow the ability to centralize local storage for networked workstations and allow accessing the virtual storage as if it were local" (see page 3, lines 10-14 of the Office Action). Applicants respectfully disagree. There is no reasonable expectation of success in providing the switching system of <u>Hoese</u> in the system of <u>Papa</u> to centralize local storage for networked workstations and allow accessing the virtual storage as if it were local, as the Office Action contends.

In order to establish a *prima facie* case of obviousness, the Office Action must meet three criteria.

> "First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations."[1]

---

[1]   *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

The rejection of claim 1 under 35 U.S.C. §103(a) as being unpatentable over Papa in view of Hoese is improper because it does not meet all of the criteria for a *prima facie* case of obviousness. In particular, if one were to attempt to argue that a network interface module 104 of the Papa system is an adapter and the storage router 44 of Hoese is a switching system, there is no reasonable expectation of success in combining the Hoese storage router 44 into the Papa system as a network interface modules 104 to centralize local storage for networked workstations and allow accessing the virtual storage as if it were local, as contended by the Office Action.

Papa clearly shows a backplane printed circuit board 184 which provides rigidly located signal pathways from the Papa computer system to the interface card slots. Accordingly, replacing a Papa interface card (e.g., a NIC, a LAN card, a SCSI controller card) with the Hoese storage router 44 would not "allow the ability to centralize local storage for networked workstations and allow accessing the virtual storage as if it were local" as the Office Action contends. Specifically, the pathways to and from the Papa computer system would still rigidly exist as before and there would be no change in accessibility of storage, as the Office Action suggests. Moreover, nothing in either Droms or Ping teaches or suggests how one could successfully combine the Hoese storage router 44 into the Papa system as a network interface modules 104 to centralize local storage for networked workstations and allow accessing the virtual storage as if it were local, as contended by the Office Action.

In contrast to Papa and Hoese, the switching system integrated into the adapter of claim 1 enables the adapter to isolate the data storage system input/output (I/O) controller of the network data storage system from external devices by connecting all of the ports of the data storage system input/output (I/O) controller into a test loop and thus verify proper operation of the data storage system input/output (I/O) controller by sending and confirming test vectors through the test loop. This feature is described in the Specification, for

example, on page 25, line 20 through page 27, line 6 and Fig. 6. There is no teaching or suggestion of such a feature in any of the cited prior art references.

For the reasons stated above, claim 1 patentably distinguishes over the cited prior art, and the rejection of claim 1 under 35 U.S.C. §103(a) should be withdrawn. Accordingly, claim 1 is in allowable condition.

Because claims 2-14 depend from and further limit claim 1, claims 2-14 are in allowable condition for at least the same reasons.

Claims 18-31

Claim 18 is directed to a method of using a network adapter in a network data storage system to permit data communication among data exchanging devices and a data storage system input/output (I/O) controller. The controller resides in the data storage system. The data exchanging devices are external to the adapter. The adapter includes one or more interfaces and a switching system. The method involves coupling the one or more interfaces to an electrical backplane of the system. The backplane is coupled to the controller and is configured to permit communication between the controller and the adapter when the one or more interfaces are coupled to the backplane. The method further involves coupling a first set of ports of the switching system to the data exchanging devices, and coupling a second set of ports of the switching system to the controller.

Papa and Hoese do not teach or suggest a method of using a network adapter in a network data storage system to permit data communication among data exchanging devices and a data storage system input/output (I/O) controller which involves coupling a first set of ports of the switching system to the data exchanging devices, and coupling a second set of ports of the switching system to the controller, as recited in claim 18. Rather, as mentioned above in connection with claim 1, there is no *prima facie* case for obviousness. In particular, there is no reasonable expectation of success in combining the Hoese storage router 44 into the Papa system as a network interface modules 104 to

centralize local storage for networked workstations and allow accessing the virtual storage as if it were local, as contended by the Office Action.

Accordingly, claim 18 patentably distinguishes over the cited prior art for at least the same reasons as claim 1. Thus, the rejection of claim 1 under 35 U.S.C. §103(a) should be withdrawn and claim 18 is in allowable condition.

Because claims 19-31 depend from and further limit claim 18, claims 19-31 are in allowable condition for at least the same reasons.

Newly Added Claims

Claims 35-41 have been added and are believed to be in allowable condition. Claims 35-37 depend from claim 1. Claims 38-40 depend from claim 18. Claim 41 is an independent claim. Support for claims 35-41 is provided within the Specification, for example, on page 25, line 20 through page 27, line 6 and Fig. 6. No new matter has been added.
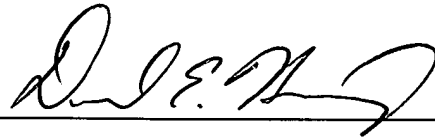
Conclusion

In view of the foregoing remarks, this Application should be in condition for allowance. A Notice to this affect is respectfully requested. If the Examiner believes, after this Amendment, that the Application is not in condition for allowance, the Examiner is respectfully requested to call the Applicants' Representative at the number below.

Applicants hereby petition for any extension of time which is required to maintain the pendency of this case. If there is a fee occasioned by this Amendment, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 50-0901.

If the enclosed papers or fees are considered incomplete, the Patent Office is respectfully requested to contact the undersigned collect at (508) 366-9600, in Westborough, Massachusetts.

Respectfully submitted,

David E. Huang, Esq.
Attorney for Applicant(s)
Registration No.: 39,229
CHAPIN & HUANG, L.L.C.
Westborough Office Park
1700 West Park Drive
Westborough, Massachusetts 01581
Telephone: (508) 366-9600
Facsimile: (508) 616-9805

Attorney Docket No.: EMC02-25(01087)

Dated: March 14, 2005